

**Notice of Allowability**

Application No.

10/757,253

Examiner

Hsien-ming Lee

Applicant(s)

EPPICH ET AL.

Art Unit

2823

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/10/05 & 1/9/06.
2. ☒ The allowed claim(s) is/are 31-39, 41, 42, 44, 46-48, 50-52 and 55-57.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 111005
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

HSIEN-MING LEE  
PRIMARY EXAMINER

1/25/06

## DETAILED ACTION

### *Allowable Subject Matter*

1. Claims 31-39, 41, 42, 44, 46-48, 50-52 and 55-57 are allowed.
2. The following is an examiner's statement of reasons for allowance:

Zheng et al. to US 6,794,232 teach a method of forming a CMOS device, comprising: providing substrate comprising a PMOS gate region and an NMOS gate region; forming a gate dielectric layer 606 over the PMOS gate region and the NMOS gate region (Fig.8); forming a bi-layer stacks of relatively thick Al and thin TiN for NMOS and bi-layer stacks of relatively thick Pd and thin TiN for PMOS (col. 3, lines 30-33) to manipulate work functions of the PMOS and the NMOS, wherein the TiN thickness is in a range of 10~200 angstroms (col. 6, lines 20-21).

In re claim 31, Zheng et al. at least neither teach nor suggest forming a thin metal-containing material to be covered the PMOS and NMOS gate regions, the thin metal-containing material being formed to a thickness of less than or equal to about 20 angstroms and being formed over a thick metal-containing material over the PMOS gate region.

In re claim 44, Zheng et al. also neither teach nor suggest forming a metal-containing material over a dielectric layer, the metal-containing material being formed with less than or equal to about 70 ALD cycles, wherein the metal-containing material comprises one or more of titanium silicide, tantalum silicide, hafnium silicide and tungsten silicide.

In re claim 55, Zheng et al. also neither teach nor suggest forming a capacitor electrode ; providing a metal-containing material between the capacitor electrode and a capacitor dielectric layer, the metal-containing material having a thickness of no more than about 20 angstroms,

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wherein the metal-containing material comprises one or more of titanium silicide, tantalum silicide, hafnium silicide and tungsten silicide.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hsien-ming Lee whose telephone number is 571-272-1863. The examiner can normally be reached on Tuesday-Thursday (7:30 ~ 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hsien-ming Lee  
Primary Examiner  
Art Unit 2823

Jan 25, 2006

HSIEN-MING LEE  
PRIMARY EXAMINER

1/25/06